**RESEARCH**

# Deploying Sustainability Through Employee Participation. An Action Research Proposal

Jesús García-Arca[1] · A. Trinidad González-Portela Garrido[2] · J. Carlos Prado-Prado[1]

## Abstract

Society is increasingly aware of and sensitive to the deployment of sustainability. Therefore, firms must implement policies that not only have a positive effect on their sustainable behavior but also contribute to improving their competitivity. In this dual context of sustainability and competitiveness, there has been little in-depth analysis in the academic literature of the positive impact of structured employee participation systems. The main aim of this paper is to propose and apply a methodology for the joint development of sustainability and competitiveness by means of such systems. The methodology will draw on the basic principles of continuous improvement based on a literature review but also by adopting an *Action Research* approach, in which the researchers and companies collaborate to create useful knowledge for both parties. Likewise, this paper also illustrates its implementation at a Spanish food product manufacturer. The paper shows the potential in both the research and business spheres, as it provides a useful guide for improving sustainability and competitiveness through the deployment of structured employee participation systems. Likewise, the paper also illustrates the usefulness of researchers and practitioners collaborating shoulder to shoulder to generate and transfer knowledge.

**Keywords** Employee Participation · Sustainability · Competitiveness · Action Research

✉ Jesús García-Arca
   jgarca@uvigo.es

   A. Trinidad González-Portela Garrido
   tgonzalez-portela@uvigo.es

   J. Carlos Prado-Prado
   jcprado@uvigo.es

1  Grupo de Ingeniería de Organización (GIO), Universidade de Vigo, Escuela de Ingeniería Industrial, Campus Lagoas-Marcosende, c/ Maxwell s/n, Vigo 36310, Spain

2  Grupo Organización del Conocimiento (OE7), Universidade de Vigo,  Facultad de Comercio, c/ Torrecedeira, 105, Vigo 36208, Spain

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## Introduction

In a context where markets are increasingly global, turbulent, and uncertain, companies and supply chains must design and develop improvement programs to increase their levels of competitiveness as an inevitable step towards survival in the medium to long term (Nilsson and Christopher 2018). This quest for competitiveness takes place in a framework of complexity that affects the efficient flow of materials and information, both within the individual processes of companies and between companies in the supply chain (Ateş et al. 2020).

At the same time, and without losing sight of this competitive perspective, the greater sensitivity of organizations, markets, and society with regards the responsibility or ethics of business activities has meant that the boundaries of management have been enlarged to include a more general framework for sustainability (Kumar et al. 2021), including the development of its economic, environmental, and social axes (Elkington 2004). However, this deployment of sustainability along its three axes implies a change of mentality and cultural transformation in companies and supply chains with strategic and operational repercussions that go as far as products and processes (Woiwode et al. 2021). All this implies an evolution and learning process that goes beyond the corporate level to reach the individual level of workers, both professionally and personally (De Stefano et al. 2018; Pérez et al. 2018).

On the other hand, process and product design has traditionally been linked to the development of "continuous improvement" programs, as a way to increase the competitiveness of companies and supply chains. *Continuous improvement* (Boer et al. 2000) is actually a large *umbrella* term that includes different management approaches seeking, in broad terms, to eliminate activities that do not add value ("waste") for the customer or the market (Jaca et al., 2012a; Prado-Prado et al., 2020). It can be applied at all times and in all types of company and sector, as it requires almost no specific financial resources and such approaches linked to this *umbrella* include *Lean Management, Kaizen, Just in Time (JIT)*, or *Total Quality Management (TQM)*.

However, despite the fact that they arose from different needs and concerns, the application of continuous improvement and sustainability should not be considered as unconnected options, but rather as options with common aspects and with clear possibilities for synergies (Adams et al. 2016; Khurana et al. 2021). In the academic field there are different studies that indicate that the deployment of sustainability presents a positive effect in the medium and long term on the competitiveness of companies and supply chains (Schaltegger and Hörisch 2017; Porter and Kramer 2019), impacting on aspects as varied as cost reduction (Mata et al. 2018), customer satisfaction (Davis-Sramek et al. 2020; Igbudu et al. 2018) or product and process innovation (Shu et al. 2020).

In this context, the implementation of *continuous improvement* has as one of its keys to success the involvement and participation of everyone in each company throughout the supply chain (Jørgensen et al. 2007; Jaca et al., 2012b; Lamm et al., 2015; Wickramasinghe and Chathurani, 2021), which could also be a critical aspect in the deployment of sustainability, in view of the change of mentality and cultural transformation that this implies (Kim et al. 2020). Obviously, involvement and participation of management in a continuous improvement program are very important (for its design and tracking), but of equal importance are the involvement of middle management and particularly employees, given that many of

the actions for improvement will be developed at these levels (García-Sabater et al. 2012; Marksberry et al. 2014; Jaca et al. 2016; Prado-Prado et al. 2020a).

There is little doubt that practices in the current environment of competitiveness and sustainability have undergone a major change from the traditional ways of addressing labor organization. Some authors refer to this change in the role of employees as *empowerment*, that is, granting them more responsibility and control over the processes they participate in and providing them with the levels of training needed for that responsibility to be undertaken (Fernández and Moldogaziev, 2013; Verhulst, 2014; Lamm et al., 2015; Kim et al., 2020; Piwowar-Sulej, 2021). Therefore, participation itself could and should be considered (from the authors' point of view), as yet another variable for deploying sustainability (social, but also environmental, and economic). However, this relationship between employee participation and the development of sustainability and competitiveness has scarcely been dealt with in academic literature (Hartini and Ciptomulyono 2015; Hallinger 2020; Cachón-Rodríguez et al. 2021; Jum'a et al. 2022). In fact, some authors point out the need to study in depth the impact that sustainability policies have on the workers themselves, because it is they who assume the greatest responsibility and burden in the implementation (Wong and Kim 2020).

Within the framework described previously, the *Research Question* of this paper is as follows:

- *Can a systematic and structured methodology for employee participation in a continuous improvement context actively contribute to the deployment of the three axes of sustainability (social, environmental, and economic), while simultaneously increasing competitiveness in the supply chain and motivation in workers?*

The proposed methodology, which will be detailed and justified later (see Sect. 3), adopts the "Action Research" approach (Coughlan and Coghlan 2002; Näslund et al. 2010). According to Coughlan and Coghlan (2002, p. 238), "*Action Research is a form of science which differs from experimental physics but is genuinely scientific in its emphasis on careful observation and study of the effects of human behaviour on human systems as they manage change*"; therefore, in the context of the necessary observation and reflection of cultural transformation to deploy sustainability, this research approach is considered particularly useful.

This methodology is based on the creation of mixed teams made up of the researchers and the different hierarchical levels of the organization including, logically, the workers themselves. Based on the work of these teams, two complementary phases of study (conceptual and applied) are developed in a cycle of learning and internal transformation in 3 stages (Preliminary, Launching, and Consolidation). To materialize the work carried out in these phases and stages, a predefined system is used based on the deployment of four basic factors (key performance indicators or KPIs, Communication, Training, and Rewards-Recognition) that not only lead to the deployment of sustainability, but also to the generation of knowledge in this field.

This paper is divided into six sections. This first section is followed by a justification of the potential relationship between sustainability, competitiveness, and employee participation. Then, the paper's methodological proposal is developed theoretically for later application in a Spanish food industry firm. That is followed by the discussion (and reflections) and, lastly, are the conclusions.

## A sustainable vision of employee participation

According to the United Nations Brundland Report (1987, pp. 37), sustainable development is "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*". Sustainable development is conceptualized along three axes, or the *Triple Helix*: environmental, economic, social (Elkington 2004). The Triple Helix proposes that at the intersection of environmental, economic, and social endeavors, there are alternatives that can be adopted by firms and supply chains. These will not only positively affect the environment and society but will also provide economic benefits and, therefore, competitive advantages. Therefore, the three axes of sustainability should be integrated with none of them being neglected or spurned. Porter and Kramer (2006) or Pagell and Shevchenko (2014) consider it *irresponsible* to pay attention to the social and environmental sphere without also being concerned about the economic aspect. Likewise, deploying sustainability involves acting in many fields and areas within companies and organizations with repercussions at strategic and operational levels. This diversity of perspectives is a true puzzle for companies, which has not always been conveniently solved by them.

At the same time, a growing line appeared in the literature on research into the development of sustainability in firms: the importance of organizational aspects not only to facilitate global deployment of a sustainable supply chain but also to form an intrinsic part of it, particularly in that concerning social sustainability inside the companies (Labuschagne et al. 2005; Staniskiene and Stankeviciute, 2018; Farooq et al., 2019; Sudusinghe and Seuring, 2020; Amrutha and Geetha, 2020; Rey-Martí et al., 2021; Walker et al., 2021). Thus, in a work by Labuschagne et al. (2005) four dimensions associated with the development of social sustainability were characterized:

- *External Population*. Centers on developing the positive impact (or mitigating the negative one) of the activity of firms in their nearby setting.
- *Stakeholder participation*. Considers how to develop an exchange of information that is truthful, detailed and periodical between firms and their stakeholders, fostering their capacity to have an influence on the decisions of the firms themselves.
- *Macro-social performance*. Attempts to improve the positive impact (or mitigate the negative one) of the activities of firms on a wider level (regional or national).
- *Internal Human Resources*. Seeks to encourage the responsibility of each firm and supply chain with its workers in aspects such as job stability, working conditions according to legislation and international good practices (including ensuring occupational health and safety), or the promotion and professional development of each employee.

This last area (professional development of employees) would fall within the internal scope of sustainability and, despite its importance, has curiously been less studied in the academic literature (Vázquez-Burguete et al. 2014; Sánchez-Hernández et al. 2020). It is in this area that there would be a need to implement structured employee participation systems as a means of promoting sustainability in its internal social perspective by fostering *empowerment* of workers in a proactive understanding of human resources (Remmen and Lorentzen 2000; Jørgensen et al. 2007; Benn et al. 2015; Lamm et al. 2015; Stankevičiūtė and Savanevičienė 2018; Sudusinghe and Seuring 2020). Indeed, structured employee participa-

tion programs have traditionally been one of the key elements in the implementation of *continuous improvement* programs in service and industrial processes. Thus, Boer et al. (2000, p. 24) define *continuous improvement* as "*the planned, organized and systematic process of ongoing, incremental and company-wide change of existing practices aimed at improving company performance*". In this sense, the improvement culture requires a great effort of individual and organizational learning (Smeds and Boer 2004). Likewise, in a growing competitive context, the previous concept should be implemented beyond firm limits, to include other firms in its supply chain (Prado-Prado 2009).

Personnel participation is turned into synergies in any other sphere of sustainability (not just the internal social pillar), including the external social pillar, the environmental pillar and, of course, the economic one (Staniškienė and Stankevičiūtė 2018). Thus, when the elimination of "waste" in the processes along the supply chain ("continuous improvement") is considered, this also means, for example, a reduction in the consumption of raw materials, energy, or water, as well as less waste and pollution, which undoubtedly has positive impacts both environmentally and economically (Jum'a et al. 2022).

Going beyond, increased participation by employees in the sustainable improvement of business processes would actively contribute to increased satisfaction and motivation, which means that it could, in itself, be considered a *High Involvement Work Practice* (HIWP) (Gerhart 2012); such participation and involvement, then, would help achieve *better performance* in a wider context, including aspects such as productivity, flexibility, safety, working conditions, or environmental impact (Lee et al. 2013; Kim et al. 2020). Even more, this improvement in the professional performance of workers would also have a positive reflection at a personal level. (Tsai et al. 2012).

Therefore, it could seem reasonable to consider that motivation and professional performance have a reciprocal influence: not only can motivation affect professional performance positively but performance can also affect motivation (Kong et al. 2019); indeed, this motivation may also affect the affinity and loyalty of workers to the company, for example with increased pride in working in sustainable organizations (Zientara and Zamojska 2018), but also the company's ability to retain talent. According to Wickramasinghe and Chathurani (2021, pp. 888) *employee involvement "is designed to empower employees to make decisions and solve problems appropriate to their job level in the organization*", so team work supports the capacity to make decisions and solve problems.

The *United Nations General Assembly* published in 2015 its *2030 Agenda for Sustainable Development* (https://www.un.org/sustainabledevelopment/development-agenda). The Agenda puts forward 17 objectives with 169 integrated and indivisible goals that tackle the three axes. In particular, among the objectives are the promotion of decent, rewarding working conditions (objective 8), investment in innovation and infrastructure as a basis for economic growth and development (objective 9) and deployment of production and consumption patterns that reduce environmental impacts (objective 12). Along the same lines, the *International Labor Organization* (www.ilo.org) also seeks to promote workers' rights by fostering the development of decent labor opportunities that not only pursue productivity but also employee motivation and satisfaction.

Despite the clear connection between sustainability and personnel participation, in terms of competitive improvement, they are hardly touched upon scientifically in recent literature; nor are they mentioned in the related norms, guidelines, and handbooks. Take, for example, the study carried out by Fernández-González et al. (2014) on the nine main models and stan-

dards developed as guidelines for the deployment of sustainability and *Corporate Social Responsibility* (CSR), which stated that although they cover the various facets of sustainability implementation, if an analysis is made of aspects linked to the personnel in organizations, what they mainly mention has to do with human rights and working conditions, without specifically touching on the importance of structured employee participation. At the same time, in addition to looking more in depth at the benefits that these participation programs bring to sustainability, one of the key aspects at both an academic and applied level would be to know how to implement the programs successfully. These technical aspects, which are the aim of this paper, are covered in the next section, which includes a justification of the *Action Research* approach.

## A methodology for deploying sustainability through employee participation

As initially mentioned, the proposed methodology is based on the implementation of mixed teams made up of researchers and the different hierarchical levels of the organization. The work of these teams forms the basis for the development of two complementary study phases in a 3-stage internal learning and transformation process. To develop the tasks in these phases and stages, a predefined system is used that leads to the deployment of sustainability as well as to the generation of knowledge. The whole participative methodology is summarized in Fig. 1.

At this point, in addition to the critical role of employees, why also give a relevant role to researchers? As mentioned previously, deployment of sustainability policies in organiza-
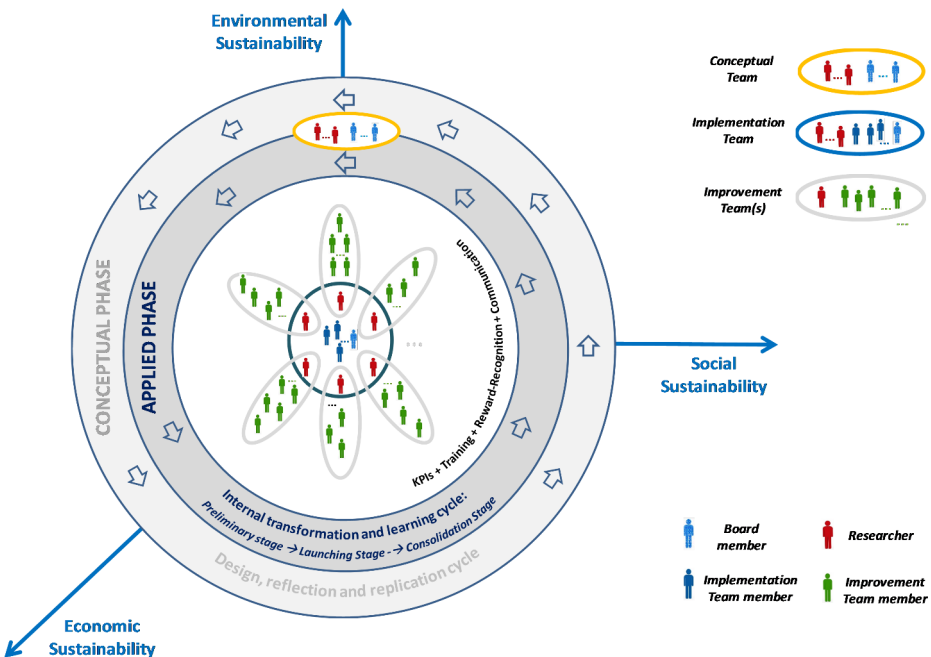


Fig. 1 Proposal of the participative methodology for deploying sustainability and competitiveness

tions and supply chains requires an internal cultural transformation or change that *soaks into* each person and hierarchical level, raising awareness and motivation. In this context, the *Action Research* approach is particularly useful as it allows researchers to assist in that organizational transformation or change not just as privileged witnesses but as relevant actors in it (Bradbury et al. 2019). In the literature, some authors use the term "*insiders*" for these researchers with transformational capacity (Coghlan 2007). This approach promotes tight collaboration between academics and practitioners in order to generate scientific knowledge that can be shared, qualified, and validated by other researchers and organizations while simultaneously also being of use from a business perspective (Näslund et al. 2010). Curiously, different authors have highlighted the scarcity of such collaboration between the scientific and business worlds when it comes to generating and transferring knowledge, particularly in the management of human resources and process improvements thoughout the supply chain (Näslund et al. 2010; Farooq and O´Brien, 2015; Coughlan et al., 2016; García-Arca et al., 2018).

Thus, this paper attempts to bridge that gap by proposing a methodology that, with a scientific and empirical grounding based on the *Action Research* approach, allows internal sustainability to be developed in organizations and supply chains by means of structured employee participation. In order to do so, the authors adapt the two-stage methodology (conceptual and applied) developed by García-Arca et al. (2018), and Prado-Prado et al. (2020 a, b) and applied to the fields of transport management, healthcare, and production management, respectively, but not to the field of sustainability. Thus, this new methodology works like two concentric layers interconnected by teams to foster knowledge generation and transfer in the context of sustainability deployment (see Fig. 1).

The first (*conceptual*) stage is needed to lay the foundations for the key theoretical factors that will underpin the improvement of sustainability through employee participation. This first phase is based on an analysis of the literature as well as the authors' experience of over 30 years deploying continuous improvement projects in companies under an *Action Research* perspective, particularly in the sphere of sustainable supply chain and logistics management.

The second (*applied*) stage aims to facilitate the exploratory validation (or qualification) of those factors within the proposed methodology's general framework, through the deployment of teams in the companies or organizations in which it is implemented. Logically, both stages (*conceptual and applied*) are permeable and feed back on each other to create evolutionary learning cycles in which the researchers participate with different levels of intensity and responsibility. The researchers are directly involved in the scientific process of knowledge generation and validation, but also in the sustainable improvement of the processes in the organizations by means of the various types of team.

Thus, in order to develop the methodology, two types of mixed researcher-company teams are defined: conceptual teams and working teams; these teams are coordinated by the researchers with an *Action Research* approach. In the literature, the use of teams is frequently mentioned when it comes to implementing "*continuous improvement*" programs (for example, Marin-Garcia et al., 2008; Wickramasinghe and Wickramasinghe, 2011), although it is new when it comes to deploying sustainability policies. The conceptual team is maintained throughout the whole organizational transformation process for improving the sustainable behavior of the company under analysis. It is the meeting point for researchers and company management, where they can share and reflect on theoretical aspects of the

sustainability and the impact of its deployment in the organization. The researchers also use this conceptual team to gain first-hand knowledge of the organization and its associated strategies, policies and processes; this important task of researchers is known in the literature as "preunderstanding" (Coghlan and Brannick 2014).

In this context, this conceptual team eases the alignment of the different "*continuous improvement*" and sustainable initiatives with the global strategy of the company (Wickramasinghe and Chathurani 2021). Logically, the presence of the researchers at the conceptual meetings not only facilitates the structuring and consolidation of knowledge but also provides *fresh air* and an *uncontaminated* outside view, enriching the implementation and facilitating its replicability in other organizations and business environments.

However, the conceptual team meetings must be complemented by other, more operative meetings in the *Gemba*, deploying working teams to apply the sustainability strategy in the redesign of processes at the company. These working teams constitute the practical way of ensuring participation and involvement from personnel, but they also act to validate, qualify, or question methodological aspects from a more operational perspective. Regarding this last point, the methodology adapts the organizational structure with two working teams proposed by Prado-Prado et al. (2020a): the implementation team and the improvement teams.

- The implementation team is responsible for designing the company's sustainability strategy and also monitoring its implementation, deploying the theoretical aspects developed in the conceptual team. Evidently, given how critical it is to define and implement this strategy correctly, it is highly recommended that company management actively participate in this team, albeit in a more applied role than the one it undertakes in the conceptual team. The researchers also form part of this team. At the same time, this team also decides on the number of improvement teams (after analyzing, diagnosing, and establishing priorities), their objectives and indicators, their makeup, and the times they will be launched and wound up (after meeting the objectives). Additionally, it is in charge of providing the resources that the improvement teams may need to carry out their activities. It also analyzes and develops other strategic improvement lines that due to their complexity or scope cannot be handled by the improvement teams.
- The improvement teams are responsible for dealing with the improvement problems and opportunities from a perspective of sustainability that is at a more operational level, forming the real *heart* of the proposed methodology. With this sustainable perspective in mind, the team members not only have the task of proposing or identifying problems but they are also responsible for analyzing possible solutions and implementing them. This involvement in the whole cycle of improvement increases their motivation and satisfaction, thus facilitating maintenance of the implemented actions and activities. The members of these teams are selected by the implementation team from among the *willing* workers in the area, section, or process being analyzed, including representatives from other related processes (typically, internal customers and suppliers). At least one researcher participates in each of these improvement teams, acting as the link to the implementation team.

In the proposed methodology, both the Implementation and the Improvement Teams, meet with a predetermined frequency (typically, weekly, or fortnightly) and at a set time. Improvement Team meetings are held straight after Implementation Team meetings, which allows

their operation and development to be monitored, oriented and guided. The tasks, responsibilities, and deadlines associated with the actions agreed within each team are reflected in the minutes of the meetings. These minutes are also used in the Conceptual Team work sessions.

As commented previously, the first phase (*conceptual*) includes an analysis of the literature on employee participation systems development, framed within a "*continuous improvement*" program. This analysis reveals certain levels of consensus regarding the key factors that can guide participation in a structured way towards improved competitive and sustainable behavior (Jørgensen et al. 2007; Scherrer-Rathje et al. 2009; García-Arca and Prado-Prado 2011; Jaca et al., 2012 (a, b); Marin-Garcia and Bonavia, 2014; García-Arca et al., 2018; Jurburg et al., 2019; Prado-Prado et al., 2020a; Wickramasinghe and Chathurani, 2021; Tortorella et al., 2021; Benkarim and Imbeau, 2021).

Logically, these key factors include aspects such as commitment from all people in the company (from middle management to workers, but starting from the Board itself) and the adoption of working teams, aspects that have already been incorporated into our methodology through the team structure. Nevertheless, the literature also highlights the need to be systematic in the way the working teams function, in such a way that allows them to analyze, implement, and monitor the tasks underway. In this regard, the authors propose to apply four additional critical factors in the methodology: the use of KPIs, continuous communication, a training program, and the adoption of a rewards-recognition system. These four factors are developed below.

Key Performance Indicators or KPIs are needed to measure the validity of the improvements being analyzed on the three axes of sustainability. Examples of economic indicators are costs, productivity, or quality. Examples of environmental indicators are consumptions of raw materials and other resources, contamination, generated waste, carbon footprint or $CO_2$ emissions. Finally, examples of operational indicators on the social axis are safety, personnel satisfaction, working conditions, talent retention, the proportion of employees participating in improvement activities, complaints by workers and/or society about activities undertaken by the company, hours of training, or the number of improvement proposals from workers that are implemented.

Likewise, our proposal for the operation of working teams attaches particular importance to internal and continuous communication of the activities undertaken by the teams, as this is considered a critical aspect when attaining an internal culture change. The whole participative program should therefore be visible. It is thus recommendable that the activities developed and their results are presented publicly. An example of this communication would be to display the minutes of the different teams on an internal noticeboard (or intranet), including the action or actions to be undertaken, the people responsible for those actions, and the deadlines for carrying them out.

At the same time, before launching each improvement team, its members are trained briefly (2 or 3 h) in practical aspects of sustainability and continuous improvement, including the important relationship between the two approaches when it comes to addressing the three axes of sustainability, but also when aiming to improve competitiveness. The authors believe that this brief session is enough to start the teamwork successfully, as the members will continue to learn in a practical way throughout the meetings ("*learning by doing*"). Furthermore, any effort made to communicate the activities and results of sustainable improvement to everyone will also be an example of awareness raising and indirect training.

Additionally, our working system also aims for employee participation to improve professional and personal development and integration. Therefore, reward/recognition for each worker's performance should not only be based on their contribution in the participation program, but also on personal considerations. However, the authors consider that social and business recognition of a job well done, involvement, and the achievements attained are more important than direct economic reward. In this sense, for example, after winding up each improvement team, the members give a public presentation to the organization of the activities undertaken and the results obtained (another example of internal communication), at which the management team recognizes their work and dedication and thanks them. In fact, these recognition and communication efforts raise awareness in a broader and complementary way throughout the organization, as the importance that management attaches to sustainability and competitive improvement is amplified.

However, the development and winding up process for improvement teams is parallel to the process at the company of internal transformation and learning towards improved sustainable behavior. This internal transformation and learning process has three discernible stages: preliminary, launching, and consolidation. This idea of evolution and growth in employee participation systems for achieving internal transformation and learning is in line with the proposals by Bessant and Caffyn (1997) for describing the evolution and growth in continuous improvement programs.

The preliminary stage seeks to define operational aspects such as the makeup of the working teams, the priorities for action in terms of areas or departments (and/or companies on the supply chain), including the pilot areas where the improvement teams will be launched (after carrying out the prior diagnosis) or determining the KPIs to be used for monitoring. Then, during the launching stage, a series of improvement teams are started up in pilot areas that were previously identified in the preliminary stage. Success at this stage is critical in order to continue growing in the future in terms of sustainability because it is, in practice, the best *calling card* to attract new supporters and followers to the participative activities.

In the last stage (consolidation stage), the group-based methodology is enlarged and extended to other areas and departments, and to other related companies and organizations throughout the supply chain (suppliers, customers, etc.). As the improvements are developed and rolled out, and the positive results in terms of sustainability increase, so the number of workers to take part will grow, along with their own motivation. Consequently, the internal transformation will become more intense. Given that the results attained could be lost on winding up the improvement team, a follow-up system is set up that typically becomes part of the work of the implementation team.

Finally, it should be noted that from the implementation of the methodology in each organization the researchers obtain additional experience, refined in the conceptual team, which serves as a point of reflection and learning to adjust the methodology itself, generating knowledge that can be useful academically but that can also be transferred to other organizations. The exchange and consensus of the reflections obtained between researchers and the organization's own management (through the Conceptual Team) serves for validation, which in practice is equivalent to the triangulation proposed by Näslund et al. (2010) for applying the Action Research approach. Logically, the information and documentation associated with the work of the teams (synthesized, for example, in the team minutes) provides an objective and rigorous basis for this reflective process.

## The methodology in action

The company was set up in 2011 in response to the growing demands of many fish product manufacturers and distributors operating in the food industry that needed to outsource some of their production processes and make them more flexible. The company offers production services to meet its industrial customers' needs, including processes for cleaning cephalopods, separating individual hake fillets (from the frozen plastic-packed blocks from freezer ships) and packing bulk products from those ships in a retail format. Its customers include leading fishing companies in Europe and worldwide. At present, this SME employs a workforce of 170 and turns over 6 million euros annually. The number of customers and the company's turnover have grown steadily since its creation.

There had been no attempts to deploy participation systems to improve competitiveness at the company since it was created in 2011; logically, neither had there been attempts to improve sustainability. However, the Board at the company believed that this was the necessary way forward for them to ensure competitiveness and long-term survival of the company, given that it was a way to support the company's growth, reducing costs, raw material, energy, and water consumption, minimizing waste generation and investments, and ultimately improving profitability. On the other hand, a growing number of customers were asking for more active sustainability commitments and policies, which, used as a business argument, allowed access to new markets. The authors participated in the transformation project for more than one year, also convincing the company to consider the project as a perfect excuse to increase the motivation of its employees.

### Preliminary Stage

Following the proposed methodology, conceptual and implementation teams were set up and an initial diagnosis was carried out to discover priorities in order to establish the areas where the improvement teams could potentially be launched. The conceptual team was made up of the authors and the Director of the company, who met monthly to discuss and reflect on theoretical aspects of the methodological implementation being undertaken at the Company. The implementation team was made up of eight people and included the Director, the Production Manager, the Assistant Production Manager, the Head of Logistics, the Head of Maintenance, the Head of Quality, the Head of Administration and one of the authors of this paper.

From the initial diagnosis, carried out by the authors, the following deficiencies were identified in the company's production management: incomplete management indicators; non-standardized processes; processes with a high volume of losses and overconsumption (including water, energy, raw materials, and packaging materials); scarce interdepartmental communication; transportation of people or materials over long distances; problems with cleanliness and tidiness together with ergonomics and safety issues. In addition, a high level of staff turnover was observed at the factory, which could have been related to a certain level of dissatisfaction or lack of motivation, or more globally, to the company's difficulty in retaining talent. Development work in this preliminary stage took place during the first month of the project.

**Launching Stage**

As a result of the work done in the previous stage, it was decided to launch three successive improvement teams: *Packing*, *Logistics*, and *Cephalopod Cleaning*. This launching stage lasted 5 months. Employees and direct supervisors for the processes being studied participated in each team, alongside *internal* suppliers and customers (among them, logistics, administration, and maintenance personnel), who enhanced understanding of issues involving the complete productive flow. The members of each team were chosen by the implementation team with a view to recruiting from the most proactive workers at the company; likewise, they attempted to include as many participants as possible at this stage. One of the authors also participated in each of these teams as coordinator.

The system of working followed by each improvement team began with a public presentation to the organization; this presentation is an example of the internal efforts to encourage communication. Later, a training session was undertaken by each improvement team. After that, the first session for each improvement team was devoted to brainstorming. Between them, the three teams compiled a total of 212 ideas. This prior brainstorming complements the initial analysis and diagnosis carried out by the researchers and the implementation team. After a number of meetings, each improvement team presented the results. This presentation took place at a meeting attended by the Board and all the members of the implementation team. This meeting also offered the Board a chance to recognize publicly the work undertaken by the improvement team members.

Some of the activities developed in these three teams included specific actions aimed at improvements in knowledge of the processes by means of indicators, improvements in ergonomics and optimization of the resources used. The examples in Table 1 illustrate how the actions of the three teams contributed to improve sustainable results (mainly, economic and environmental). Likewise, some details about these improvement teams (members, number of meetings, and number of ideas from the brainstorming) are presented in this table.

**Consolidation Stage**

Thanks to the good results achieved in the launching stage, the internal transformation process had begun and the next stage sought consolidation by using the same working system. Four improvement teams were launched for six months in different areas of the company related to deployment of 5Ss programs (Sorting or *Seiri*; Ordering or *Seiton*; Cleaning or *Seiso*; Standardizing or *Seiketsu*; Discipline or *Shitsuke*) to extend the achievements already made. These teams were looking for workplaces that were tidy, clean, and well organized, which is key when reducing time lost on unnecessary movements, reducing defects and reprocessing, and increasing safety. Each team in this phase began with brainstorming among its members and their meetings were aimed at designing and implementing work standards in each of the company's workstations. New people from the company joined these teams, which meant that 35% of the workforce had participated directly in one of the 7 improvement teams deployed so far.

Currently, the company is internally planning new improvement teams in the areas of Cleaning processes and Self-maintenance. At the same time, the company plans to extend the methodology to other parts of the supply chain, working with teams in one of its main customers (one of the main food manufacturers in Spain) and one of its service providers.

**Table 1** Summary of the improvement teams deployed in the company during launching stage. (source: analysis by the authors based on data and indicators used at the factory)

| Improvement Team | Members of the team (including one of the authors) | Number of meetings (weekly/fortnightly) | Initial number of ideas from brainstorming | Examples of actions |
|---|---|---|---|---|
| Packing | 8 | 7 | 105 | Action was taken on the causes of repeated processes, on setup times and other unplanned stoppages on the bagging machine (bottlenecks on the production line), and on product losses between the transfer conveyor belts on the production line. Globally, the OEE indicator improved by 30%; the OEE, *Overall Equipment Effectiveness*, is an indicator for measuring effectiveness proposed by Nakajima in 1988. Likewise, this improvement means a reduction of 7% in electricity consumption (frozen food processing is energy intensive), a reduction in product losses or a reduction in bag waste (badly closed bags, underweight bags, etc.). For example, plastic bag consumption is estimated to be 20% lower (with a similar reduction in plastic waste generated) |
| Logistics | 9 | 8 | 72 | Actions included in-house design and development of a new machine for separating the bulk hake fillets (before being frozen and bagged). This process was originally done in an exclusively manual way, which generated product losses, quality issues (remains of plastic film stuck to the fish), and was carried out in conditions that were not ergonomic for the workforce. After installing the new machine, the process was simplified, the ergonomics improved and productivity was increased by between 33% and 43%, depending on the type of fish. Likewise, the amount of product rejected because of quality problems also fell (by 3%) |
| Cephalopod Cleaning | 7 | 7 | 35 | Some of the actions were also focused on innovation. They included redesign of the layout of the production line itself and the employee posts associated with it. This improved ergonomics and productivity (by around 10%) and reduced product losses and consumption of the water for cleaning the product (by around 5%) |

### And the Results? Some Figures in the Launching Stage

Only in the launching stage, an overall result that is worth remarking on is that 46% of the proposed ideas (212) were analyzed and implemented. Global savings obtained by implementing these ideas are estimated at around 200,000 euros per year and are based on improving process productivity (reducing stoppages, reprocessing, waste, and accidents), as well as reducing the consumption of raw materials, water, and energy.

However, beyond these brilliant results in terms of sustainability (not only at an economic level, but also at an environmental level), the company has also managed to integrate and improve the motivation and satisfaction of its own employees (social sustainability). That statement is based on the analysis of an internal survey carried out on team participants; this survey shows that 100% of the employees considered the experience as very positive and satisfying, emphasizing improved communication and coordination. During the launching stage, over 14% of the workforce had taken part in the improvement teams. Furthermore, over 80% of the participants were willing to join a new improvement team. In fact, all the members commented that, after participating in the teams, their individual view of their own role in deploying sustainability at both a professional and personal level had changed radically, and they requested that such teams and initiatives be promoted in the future. This internal motivation can facilitate the company's ability to reduce staff turnover and improve talent retention. All these results point towards correct progress of the internal transformation process regarding sustainability and competitiveness.

## Discussion

Sustainable development is one of the main challenges facing society today as it develops in a multi-faceted way that requires combined and coordinated action in very different economic, environmental, and social spheres. Thus, in an increasingly demanding global environment of active policies and actions to deploy sustainability, there must be increased awareness raising and sensitizing on all levels of society, including companies and supply chains, in order to achieve that yearned-for cultural transformation in the way people think and design their daily activities. As a result of the experience and the reflective process during more than a year in the project at the company, participating in 13 meetings of the conceptual team, 48 meetings of the improvement teams (22 of them in the launching stage) and 35 meetings of the implementation team, but also analyzing the documentation generated throughout the project (minutes, KPIs, and so forth), the authors have identified the following aspects that they would like to highlight and share:

- The cultural change needed for process improvement from a sustainable perspective requires, as a preliminary element, the commitment and involvement of management. In the proposed methodology, the participative improvement programs originate from and are explicitly promoted and monitored by the management. This commitment and involvement help the rest of the organization to see the strategic importance of these programs and receive an additional stimulus to become involved in them. In the company, the commitment and involvement of management evolved throughout the project, starting from initial more general and testimonial support to reach a more operational

level, participating directly in some of the most important or complex actions within the implementation team, all of which helped to improve the "visibility" of the project in the rest of the organization. On the other hand, an important task of the researchers has been to set the pace of the project with the company's management. This pace cannot be so fast that the organization itself cannot follow it, which would generate discouragement, frustration, and potential abandonment of the initial interest (there are always emergencies, projects, and priorities in the company with which we have to live). However, it cannot be too slow either, given that, at the other extreme, the organization would find it difficult to perceive advances and improvements that "hook" the personnel, and therefore also generate discouragement, frustration, and potential abandonment of the initial interest.

- At the same time, if the aim is for these programs to proactively implement a new vision of sustainability, it is necessary for the companies to provide internal "*meeting points*" that allow, in a systematic and ordered way, actions to be proposed, experiences to be shared, and discussions and reflection to be fostered in all areas and at all levels of the hierarchy. This need is one of the reasons for the participative approach based on teams (improvement teams, implementation team, and conceptual team). The need for these "*meeting points*" is evident in the company, given the disparity of visions (objective and subjective) about problems, solutions, priorities, or deadlines, which can even be confused with the greater or lesser personal affinity that exists between the members of each team. These "*meeting points*" help to "lubricate" the organization and promote teamwork.

- In addition, the promotion of the teams and the direct and objective participation of the researchers in them, not only makes it possible to identify new roles and skills in the people that can help the future promotion of certain workers (achieving greater motivation in them), but also help identify specific training and awareness needs. For example, in the project it has been necessary to pay greater attention to the way certain economic and environmental aspects are disseminated and explained within the teams; for example, when the first of the teams ("Packing") raised the problems generated by reprocessing bagging, some of the workers did not fully understand the negative impact on productivity, water and energy consumption, or the generation of waste. Logically, what is obvious to some may not necessarily be shared and/or understood by others; these small clarifications or comments in the teams help organizational learning grow.

- At the same time, working in teams should serve to create an atmosphere of trust and tranquility that breaks the traditional hierarchical levels which, in many cases, restrict the creativity needed to develop changes or improvements in business processes. Thus, this atmosphere facilitates *critical* and sustainable redefinition of those processes. If these changes are proposed (and shared) by the same employees that are going to apply them, their level of commitment and personal satisfaction is increased. In fact, a difference in the approach to teamwork of the methodology implemented in the company is that team members not only identify problems or opportunities for improvement, but also study solutions or alternatives (some of them with a high level of creativity or innovation) so that they can be implemented. Examples of this creativity and innovative capacity can be found in the design of a new machine in the "Logistics" team or the ergonomic redesign of the production line in the "Cephalopod Cleaning" team (see Table 1).

- However, for this to be possible, there must be a minimum number of people who are willing, initially, to become involved and participate. According to Prado-Prado et al. (2020b), in all organizations there is a minimum number; those authors identify a small percentage of workers (between 5% and 20%), they call the *devoted*, who are characterized by being proactive and always willing to explore new challenges and initiatives. Likewise, the successes attained in implementing these first changes or improvements are, in themselves, a good incentive that promotes new changes and improvements, involving (and convincing) more *devoted* employees in the organization to continue with a cultural transformation. For that reason, great importance is attached to selecting the area and the people that will initiate the teams program during the *launching stage*, given that their results will serve as an example and inspiration for the cultural transformation during the *consolidation stage*. Thus, during the launching stage in the company, there was heated debate within the implementation team about who would be the best members in the first improvement groups; in the end, a consensus was reached on a composition based on workers who, *a priori*, were more technically savvy; However, the reality was that some of these members with a more technical profile did not have such a proactive profile, presenting a greater resistance to change; logically, this fact did not prevent the first teams from starting, but it did slow down the implementation of some actions in this first stage. From the selection of these profiles and how to manage them, we learned internally to decide on the composition of the improvement teams in the consolidation stage.
- However, in order for this internal transformation to materialize, the actions implemented by the improvement teams must present a relative balance between the priorities of the management team, typically in the realm of economic profitability, and the priorities of the employees themselves, mainly in the realm of small individual or group demands that affect daily working, personal satisfaction and motivation, recognition, integration, or safety. Solving these small problems helps to increase employee motivation, and that motivation should be part of the social results included in the broad concept of sustainability. What is more, resolving these problems makes it easier to develop and maintain other actions that are directly linked to results that are economic, environmental, or social on an external level. In short, synergies are achieved by integrating the different axes of sustainability. This is the reason why all improvement teams at the company started with an initial brainstorming session, where this type of ideas—of a more personal nature that complemented the priorities of the initial diagnosis—would appear.
- In this context, the improvement of processes aimed at better sustainable behavior requires a great effort of individual and organizational learning that is directly nourished by the (positive) experiences and learning of workers in this field ("learning by doing"). This learning can be applied in the professional sphere, but also at a personal level. Such efforts should be made throughout the whole organizational structure in a bidirectional manner from management to workforce or otherwise there is a risk of sooner or later losing competitive capacity. Thus, management needs to have feedback on the activities proposed by the teams, but the team members also need to have feedback from management (through the implementation team) on the evolution and approval of these activities.

- In order to do this, many small actions (typically the responsibility of improvement teams) are combined with others of greater scope and with strategies (typically the responsibility of the implementation team). Both levels are interconnected and are part of a common sustainability deployment strategy. In the company, of the more than two hundred initial ideas in the launching stage, it was possible to analyze and implement almost 50% of those ideas, including some of a certain technical complexity, such as those mentioned above concerning equipment and production lines.
- In all events, the whole cultural transformation is not produced in an anarchic or spontaneous fashion, but rather it is planned on the basis of the work of the conceptual team and the implementation team, with tracking of suitable objectives or KPIs. An added difficulty when defining those KPIs is adapting them dynamically to the multi-faceted character of sustainability, which requires a capacity to measure and track them on levels and scales that differ greatly (social, environmental, and economic). In this context, it is necessary to explain and comment, within the improvement teams, the relationship between the proposed activities and the indicators and sustainability. In fact, such worker-oriented explanations should be nurtured in all internal communication efforts made by the company.
- Simultaneously, application of the proposed methodology actively contributes to the global objectives of sustainability deployment in the company, but also to improvement in the competitiveness of organizations and supply chains (and, at the same time, their resilience), aspects that are of great importance in environments and markets that are increasingly turbulent and uncertain. Many of the company's employees have participated during the project year in different experiences of identification, analysis, and implementation of actions, in which they have understood the impact and link between the proposed actions and the deployment of sustainability. Now, with more motivated and aware employees (and proud to belong to the company), the company is better prepared to face new challenges, customers, and markets.

## Contributions

The first contribution of the paper is to design a methodology to deploy sustainability through employee participation. The second contribution has to do with the relevant role given to researchers in designing and implementing that methodology in an exploratory fashion by applying the *Action Research* approach, which has scarcely been developed in the academic and professional literature dealing with *continuous improvement*, supply chain management, competitiveness, and particularly sustainability. Furthermore, this implementation, which illustrates the methodology's applicability, has taken place at a small to medium-sized company (SME), which adds interest due to its potential for replication and application in a large number of enterprises and organizations.

The researchers of this paper have been privileged participants in the cultural transformation in the company, which has allowed structuring, qualification, and scientific validation of the methodology so that it can be diffused and replicated in the future in other business contexts (not just SMEs) and supply chains. At the same time, the proposed methodology shows potential for development in both the research sphere and the business management sphere as it not only helps to generatate and disseminate knowledge in this field

but also provides a useful guide for improving sustainability and competitiveness through the deployment of structured employee participation programs. Likewise, the participative methodology proposed also illustrates the usefulness of researchers and practitioners collaborating shoulder to shoulder to generate and transfer knowledge, applying the *Action Research* approach.

## Limitations and Future Research

In all events, validation of the methodology has been carried out in an exploratory way in a single company, running over a significant period of time but limited to the one company, which is the main limitation of the paper. On the other hand, since it was founded more than 10 years ago, the growth in turnover and profitability at the company has always been positive. In other different scenarios (of crisis or negative profitability) the altered perception and tranquility of the company and of the workers themselves could lead to certain changes in the priorities of some of the actions undertaken. Similarly, the cultural environment of the sector (food) and/or the country (Spain) could qualify some of the aspects addressed in the methodology.

For these reasons, to achieve broader validation (and suitability) in future research, the authors aim to monitor this cultural change in the company over a longer period, in parallel with implementation of the proposed methodology in other companies, supply chains, sectors, and cultural environments.

## Conclusion

Companies and supply chains today must deploy lines of action to improve the sustainable behavior of their processes, not just for the sake of business ethics but also because they are an unavoidable way of attaining competitive survival in the long term. Thanks to the implementation of the participative methodology, better sustainable results were achieved in the company, which validate in an exploratory way the initial Research Question. That is, a systematic and structured methodology for employee participation in a continuous improvement context can actively contribute to the deployment of the three axes of sustainability (social, environmental, and social), increasing competitiveness and employee motivation simultaneously. Therefore, it can be considered that this paper opens new approaches to research and transfer in the context of sustainability implementation, staff involvement, and improvement in competitiveness.

## Declarations

**Ethical Approval** Not applicable.

**Competing Interests** None declared.

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